

# Monthly Marine Biotoxin Report

February 2006

Technical Report No. 06-09

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of February, 2006. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

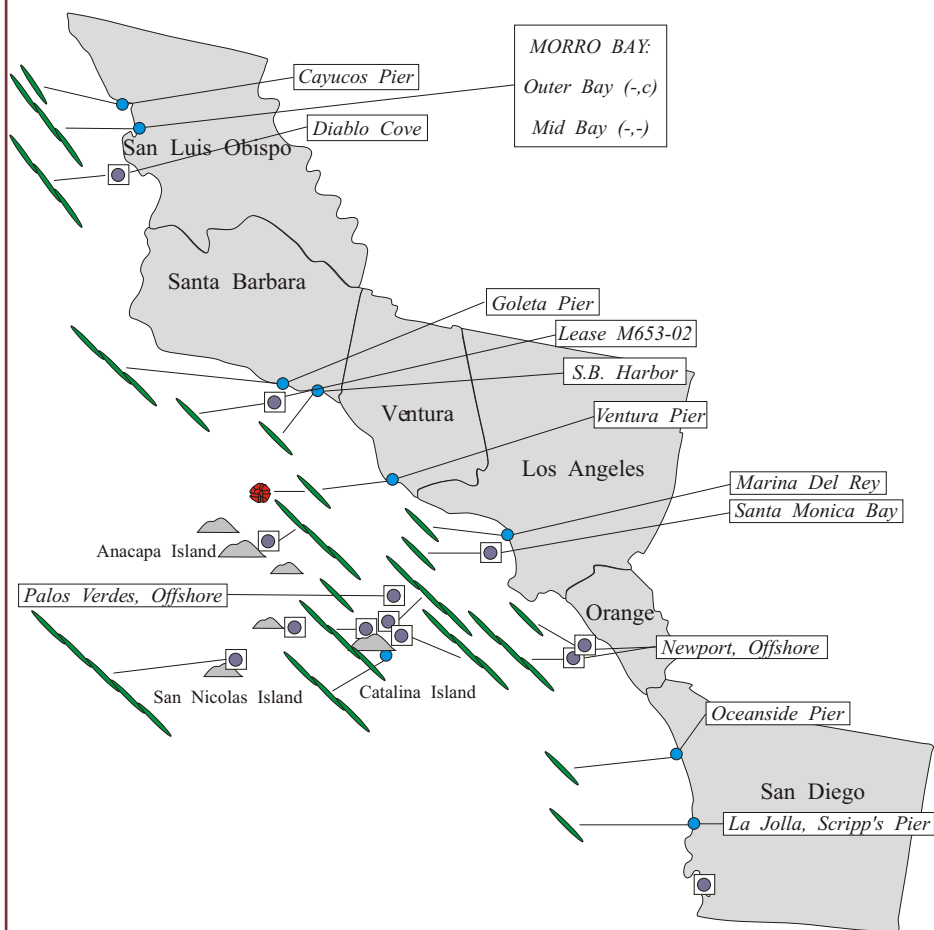
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at only one Southern California site during February (Figure 1). This dinoflagellate was only

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during February, 2006.



### Relative Abundance of Known Toxin Producers

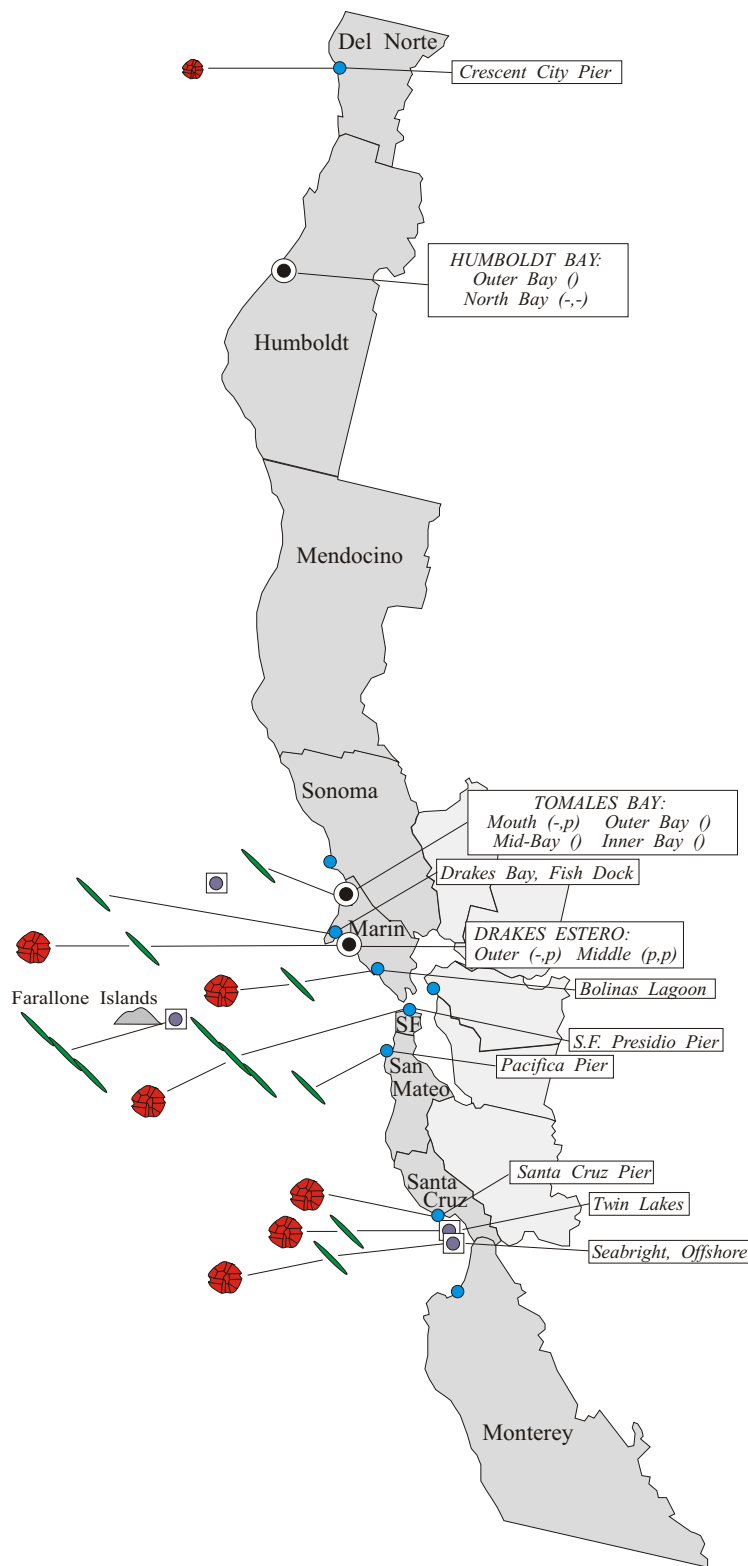
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during February, 2006.



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observed in low numbers in a February 13 sample from Ventura Pier. PSP toxins were detected in only one sample during February (Figure 3). A mussel sample collected from Morro Bay on February 27 had a low level of PSP toxins (34 ug/100 g tissue).

#### Domoic Acid

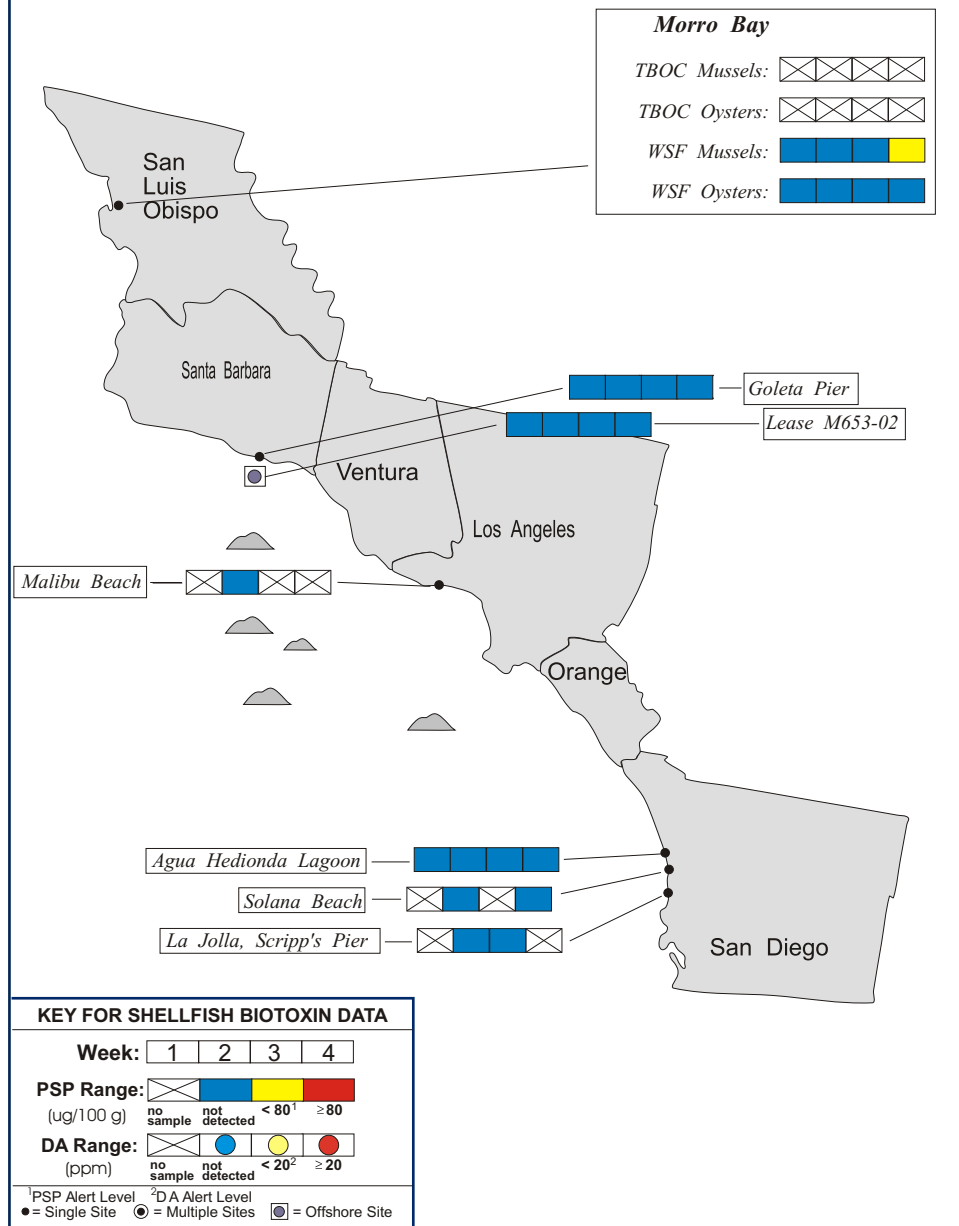
*Pseudo-nitzschia* was observed at many sites along the Southern California coast in February (Figure 1). The distribution of this diatom was slightly greater than observations in December and the relative abundance increased noticeably at several locations. Increased numbers of *Pseudo-nitzschia* were observed at sites offshore near Catalina and San Nicolas islands and offshore of Newport Harbor (Orange County). The relative abundance of this diatom was significantly higher at San Nicolas Island (February 6) and offshore of Newport Beach (February 23) than other Southern California sites.

#### Non-toxic Species

The Southern California coast contained a mix of dinoflagellate and diatoms species, with the latter group more abundant in most areas. Detritus was also abundant in samples as a result of continuing winter

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Figure 3. Distribution of shellfish biotoxins in Southern California during February, 2006.



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storms. *Chaetoceros* was common to abundant from Santa Barbara through Orange counties. Common dinoflagellate species included *Gymnodinium*, *Ceratium*, and *Lingulodinium*. *Cochlodinium* was common at Ventura Pier (February 13).

#### Northern California Summary:

##### Paralytic Shellfish Poisoning

*Alexandrium* was observed at numerous locations along the Northern California coast during February (Figure 2). The distribution and relative abundance of this dinoflagellate were similar to observations in January. *Alexandrium* continued to be present at numerous sites between Marin and Santa Cruz counties.

Elevated levels of the PSP toxins were detected in Drakes Estero (Marin County) throughout the month. Toxin concentrations exceeded the alert level in sentinel mussels from the mid-estero on February 3 (137 ug) and in the main channel on February 23 (167 ug). A low level of PSP toxins was also detected in mussels from Santa Cruz Pier on February 15.

##### Domoic Acid

*Pseudo-nitzschia* was observed at several sampling stations between Marin and Santa

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

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(510) 412-4635

For Recorded Biotoxin Information Call:  
(800) 553-4133

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Cruz counties in February (Figure 2). There was a slight increase in the relative abundance of this diatom in samples from the San Francisco Presidio Pier and offshore near the Farallone Islands.

Non-toxic Species

Diatoms (*Chaetoceros* and *Skeletonema*) were common to abundant along most of the Northern California coast in February. In addition, *Biddulphia* was abundant inside Drakes Bay. Dinoflagellates were observed at some sites, with *Ceratium* common at Crescent City, *Prorocentrum* common inside Drakes Estero, and *Gymnodinium* common at Santa Cruz Pier. Detritus was abundant in many samples as well, thanks to winter storms that persisted throughout the month.



QUARANTINES:

The June 24 health advisory remained in effect, warning the public not to eat mussels or the viscera of sardines, anchovies, lobster (also known as lobster “tomale”), and crab (sometimes called crab “butter”) from Ventura County. This advisory was issued after dangerous levels of domoic acid were detected from this region.

The annual quarantine on the sport-harvesting of mussels was rescinded as scheduled at midnight on October 31. The annual mussel quarantine applies only to

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Figure 4. Distribution of shellfish biotoxins in Northern California during February, 2006.

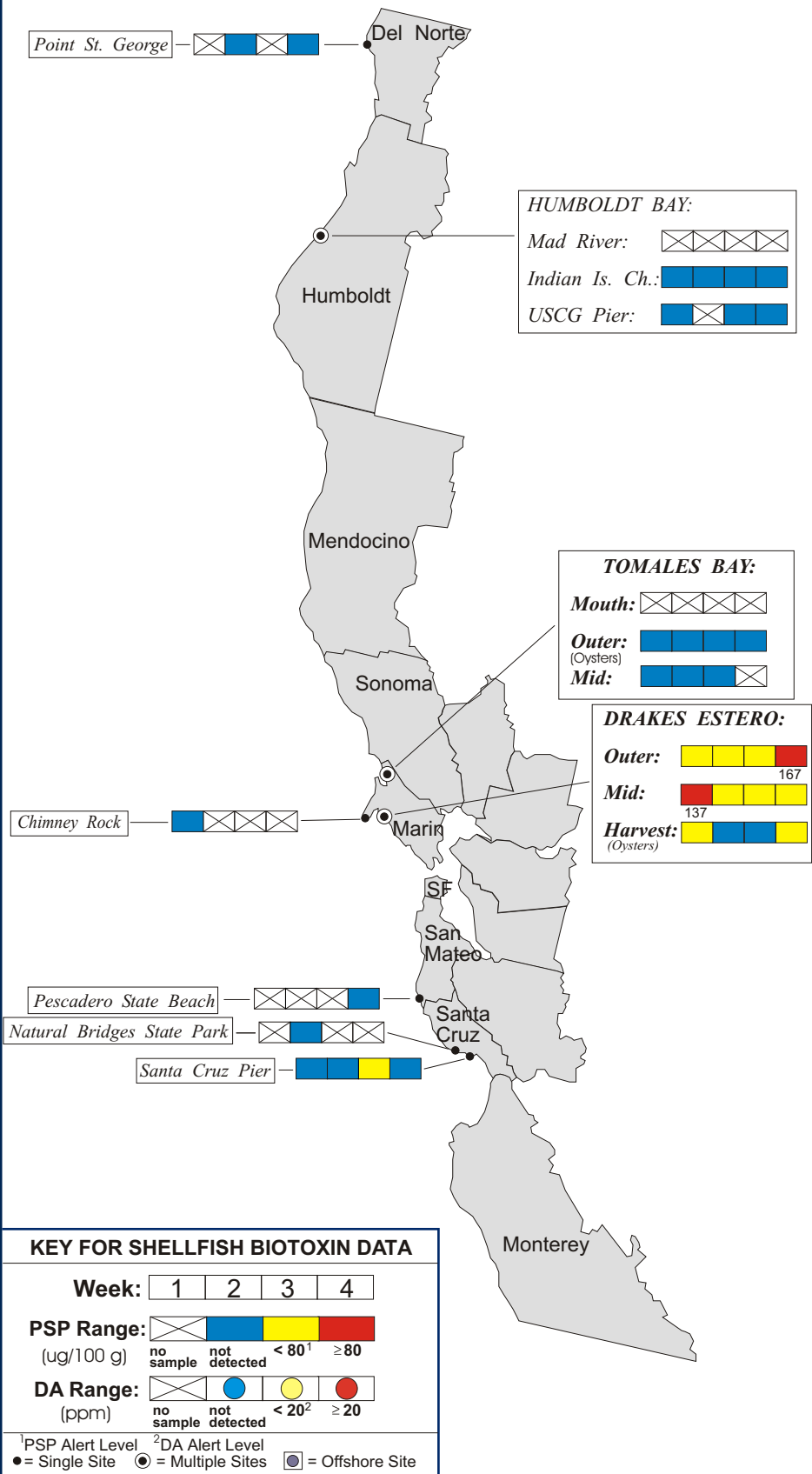


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during February, 2006.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	7
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	3
	Hog Island Oyster Company	4
	Drakes Bay Oyster Company	24
	Marin Oyster Company	1
	DHS Marine Biotoxin Program	1
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	1
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
Santa Barbara	Santa Barbara Mariculture Company	7
	U.C. Santa Barbara	5
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	1
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	4
	DHS Volunteer (Paul Sims)	2
	Scripps Institute of Oceanography	2

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sport-harvested mussels along the entire California coastline, including all bays and estuaries. Routine biotoxin monitoring is maintained throughout this period. The annual quarantine does not affect the certified commercial shellfish growing areas in California. All certified shellfish growers are required to submit at least weekly samples of shellfish for toxin monitoring. Harvest restrictions or closures are implemented as needed to protect the public's health.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Washington clams can concentrate the PSP toxins in the viscera and in the dark parts of the siphon and can remain toxic for a long period of time. Persons taking scallops or clams, with the exception of razor clams, are advised to remove and discard the dark parts (i.e., the digestive organs or viscera). Razor clams are an exception to this general guidance due to their ability to concentrate and retain domoic acid in the edible white meat.

Consumers are also advised that cooking does not eliminate the toxins from the shellfish tissue. Sport-harvesters are encouraged to contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.

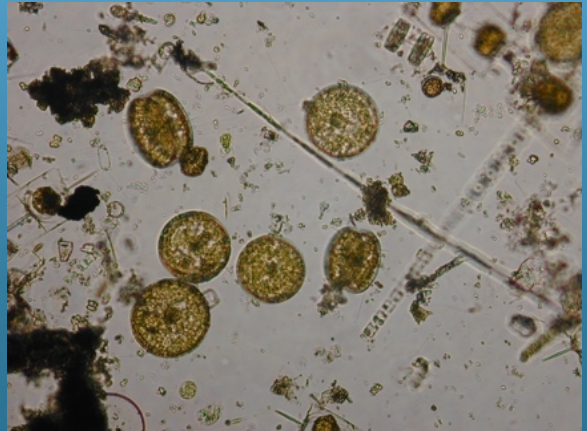




Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during February, 2006.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	Cordell Banks National Marine Sanctuary	1
Marin	DHS Volunteers (Brent Anderson, Mary Von Tolksdorf, Cal Strobel)	6
	Drakes Bay Oyster Company	7
Contra Costa	None Submitted	1
San Francisco	DHS Volunteer (Eugenia McNaughton)	2
	Gulf of the Farallones National Marine Sanctuary	1
San Mateo	San Mateo County Environmental Health Department	1
Santa Cruz	U.C. Santa Cruz	4
	California Department of Parks and Recreation	4
Monterey	DHS Volunteer (Jerry Norton)	1
San Luis Obispo	Morro Bay National Estuary Program	2
	Tenera Environmental	1
Santa Barbara	U.C. Santa Barbara	4
	Santa Barbara Mariculture Company	4
	Santa Barbara City College	1
Ventura	DHS Volunteer (Fred Burgess)	4
	National Park Service	1
	Naval Air Station, Pt. Mugu	2
Los Angeles	Los Angeles County Sanitation District	2
	Catalina Island Marine Institute	2
	Catalina Tall Ships Expeditions	10
	City of Los Angeles Environmental Monitoring Division	3
Orange	Orange County Sanitation District	2
San Diego	Scripps Institute of Oceanography	3
	DHS Volunteer (Paul Sims, Jeff Kermode)	5

## PHYTOPLANKTON GALLERY



*Diatom species continued to dominate the phytoplankton assemblage, along with lots of detritus from winter storms.*



*Pseudo-nitzschia numbers increased at several locations during February.*



*Zooplankton species like this barnacle larvae occasionally sneak into phytoplankton samples.*